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PROVISIONAL SPECIFICATION.

Improvements in the Manufacture of Soap.

A communication by ANATOLE DES CRESSONNIÈRES and ERNEST DES CRESSONNIÈRES, both of 82, Chaussée de Gand, Brussels, in the Kingdom of Belgium, Soap Makers.

I, WILLIAM PHILLIPS THOMPSON, F.C.S., M.I.M.E., of the Agency for Foreign Patent Solicitors, 6, Lord Street, Liverpool, and 6, Bank Street, Manchester, both in the County of Lancaster, 118, New Street, Birmingham, in the County of Warwick, and 322, High Holborn, in the County of Middlesex, Civil Engineer, do hereby declare the nature of this invention to be as follows:—

This invention relates to an improvement in the manufacture of soap.

The improvement in the manufacture of soap in question consists essentially in the intermingling of the material during drying, that is to say, an additional working or trituration of the paste, having the effect of changing or renewing the surfaces, or in other words, of turning to the outside the layers hitherto inside the sheets, flakes, shavings or other divided forms in which the paste is exposed to drying, so that the drying proceeds more uniformly over all the parts of the paste, in contradistinction to that which occurs in the ordinary process in which the drying action is invariably exercised upon the outer layer alone during the whole period of the drying.

In order to obtain the requisite degree of de-hydration in relation to the total quantity of the product, its exposure in the drying apparatus must be of a corresponding duration. Now as in the ordinary process the drying action proceeds continuously upon the same external layer, this layer soon becomes a hard and impermeable crust opposing the normal action and retarding the result, and consequently prolonging the period of time required for the drying, and requiring an increased amount of heat, and which above all has the drawback of destroying the homogeneousness of the material or mass which is thus dried irregularly throughout its various layers, and which consequently affects the quality of the paste in a manner hardly to be afterwards remedied.

The process of the intermingling of the paste in the course of drying entirely obviates these various inconveniences, that is to say, the material dries uniformly without forming any crust, the period of drying is shortened, heat is economised, and above all the quality of the paste is superior, and it requires no subsequent improvement.

It must be understood that the new process is applicable to all systems of manufacture and of drying, because its effect will always be proportional to the

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conditions in which it is carried out, but its advantages are more specially recognisable in its application to the system of continuous manufacture of our invention in direct combination with which it will now be described by way of example. For this purpose it should be recollected that this process has for its essential principle the continuity of the operations of cooling, milling, and drying 5 of the soap paste, which paste is delivered in a warm and plastic state into a hopper mechanism having as its movable bottom the upper cylinder of the first milling roll; it then passes through the series of cylinders which compose the machine, being thoroughly milled in its progress, and delivered finally in the form of chips, flakes or shavings to the carrying bands of the drying mechanism 10 placed immediately in front of the milling mechanism, and in which a heating device of any suitable kind maintains the temperature at the given point during the drying, in the course of which the intermingling of the material as above set forth is caused. For this purpose use is made of a very simple contrivance, which consists in submitting the chips or flakes of soap to a further milling after 15 proceeding a part of their course upon the drying bands for the purpose of causing them to complete the remainder of the journey after the intermingling or renewal of the surfaces by reason of their passage into a milling mechanism of suitable construction placed in the interior of the stove between two groups of bands preferably superimposed one above the other, and corresponding the one 20 to the first phase, and the other to the second phase of the drying.

In order to define these ideas more clearly an instance of the arrangement of the drying and intermingling mechanism following the original milling machine will now be described. The original milling machine has a series of cylinders causing originally the aggregation of the hot paste and the progressive milling 25 thereof and is combined with a stove heated by a suitable heating device and surmounted by a ventilating fan discharging at the top the air charged with the moisture removed from the soap travelling over suitable conveying bands of a drying mechanism. The last cylinder of the milling machine delivers to the first band the soap in the form of flakes and about at the temperature of con- 30 gealing. From this first band it passes to a second band, and from that to a third. During its course the surrounding air being heated to the necessary temperature evaporates the water from the exterior layers of the flakes, which thus arrive at the end of the third band without being covered by a hard and impermeable crust as usually happens, and it is whilst they are in this normal 35 state that they pass between the cylinders of an intermingling milling machine, whereby their surfaces are renewed. This mechanism is so placed as to be between the first three of the drying mechanism bands and two further bands in the same and to deliver to this latter group the soap re-worked by the milling rolls, and presenting to the heated air chips, flakes or shavings formed by means 40 of suitable scrapers and having new surfaces, enabling the evaporation of the whole surplus moisture of the paste without forming hard, dry crusts.

The scrapers are placed so as to detach the paste from the cylinder in that part of the rotation from below upwards so as to facilitate the immediate fall of the chips, and to prevent an accumulation of material upon the scraper. When they 45 reach the end of the last band the chips are carried away by a separate band which conducts them to the place for the further operations.

It is obvious that in place of a single milling intermediate between two groups or bands there may be arranged several, and the groups of bands arranged correspondingly according to need, and according to the nature of the material to be 50 treated; moreover the bands may be grouped either side by side or the one after the other, but it will be found in practice that the superposed arrangement is much the most advantageous and generally preferable.

Dated this 25th day of February 1898.

WM. P. THOMPSON & Co., 55
Agents.

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COMPLETE SPECIFICATION.

Improvements in the Manufacture of Soap.

A communication by ANATOLE DES CRESSONNIÈRES and ERNEST DES CRESSONNIÈRES, both of 82, Chaussée de Gand, Brussels, in the Kingdom of Belgium, Soap Makers.

I, WILLIAM PHILLIPS THOMPSON, F.C.S., M.I.M.E., of the Agency for Foreign Patent Solicitors, 6, Lord Street, Liverpool, and 6, Bank Street, Manchester, both in the County of Lancaster, 118, New Street, Birmingham, in the County of Warwick, and 322, High Holborn, in the County of Middlesex, Civil Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement;—

This invention relates to an improvement in the manufacture of soap.

The improvement in the manufacture of soap in question consists essentially in the intermingling of the material during drying, that is to say, an additional working or trituration of the paste, having the effect of changing or renewing the surfaces, or in other words, of turning to the outside the layers hitherto inside the sheets, flakes shavings or other divided forms in which the paste is exposed to drying, so that the drying proceeds more uniformly over all the parts of the paste, in contradistinction to that which occurs in the ordinary process in which the drying action is invariably exercised upon the outer layer alone during the whole period of the drying.

In order to obtain the requisite degree of de-hydration in relation to the total quantity of the product, its exposure in the drying apparatus must be of corresponding duration. Now as in the ordinary process the drying action proceeds continuously upon the same external layer, this layer soon becomes a hard and impermeable crust opposing the normal action and retarding the result, and consequently prolonging the period of time required for the drying, and requiring an increased amount of heat, and which above all has the drawback of destroying the homogeneousness of the material or mass which is thus dried irregularly throughout its various layers, and which consequently affects the quality of the paste in a manner hardly to be afterwards remedied.

The process of the intermingling of the paste in the course of drying entirely obviates these various inconveniences, that is to say, the material dries uniformly without forming any crust, the period of drying is shortened, heat is economised, and above all the quality of the paste is superior, and it requires no subsequent improvement.

It must be understood that the new process is applicable to all systems of manufacture and of drying, because its effect will always be proportional to the conditions in which it is carried out, but its advantages are more specially recognisable in its application to the system of continuous manufacture of the invention in direct combination with which it will now be described by way of example. For this purpose it should be recollected that this process has for its essential principle the continuity of the operations of cooling, milling, and drying of the soap paste, which paste is delivered in the warm and plastic state into a hopper mechanism having as its movable bottom the upper cylinder of the first milling roll; it then passes through the series of cylinders which compose the

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machine, being thoroughly milled in its progress, and delivered finally in the form of chips, flakes or shavings to the carrying bands of the drying mechanism placed immediately in front of the milling mechanism, and in which a heating device of any suitable kind maintains the temperature at the given point during the drying, in the course of which the intermingling of the material as above set forth is caused. For this purpose use is made of a very simple contrivance, which consists in submitting the chips or flakes of soap to a further milling after proceeding a part of their course upon the drying bands for the purpose of causing them to complete the remainder of the journey after the intermingling or renewal of the surfaces by reason of their passage into a milling mechanism of suitable construction placed in the interior of the stove between two groups of bands preferably superimposed one above the other, and corresponding the one to the first phase, and the other to the second phase of the drying.

In order to define these ideas more clearly, reference will be had to the accompanying drawing in which is indicated diagrammatically an instance of the arrangement of the drying and intermingling mechanism following the original milling machine.

In this drawing, the letter B indicates the original milling machine having a series of cylinders causing originally the aggregation of the hot paste and the progressive milling thereof, whilst the letter A indicates the stove heated by a suitable heating device M, and surmounted by a ventilating fan O discharging at the top the air charged with the moisture removed from the soap travelling over the bands C, D, E, F, G, of the drying mechanism. The last cylinder of the milling machine B delivers to the first band C the soap in the form of flakes and about at the temperature of congealing. From this band C it passes to the band D, and from that to E. During its course the surrounding air being heated to the necessary temperature evaporates the water from the exterior layers of the flakes, which thus arrive at the end of the band E without being covered by a hard and impermeable crust as usually happens, and it is whilst they are in this normal state that they, pass between the cylinders H and I of the intermingling milling machine, whereby their surfaces are renewed. This mechanism is so placed as to be between the bands C, D, E and the bands F G and to deliver to this latter group the soap re-worked by the milling rolls, and presenting to the heated air chips or flakes formed by means of the scrapers L L and having new surfaces, enabling the evaporation of the whole surplus moisture of the paste without forming hard, dry crusts.

The scrapers L L are placed so as to detach the paste from the cylinder in that part of the rotation from below upwards so as to facilitate the immediate fall of the chips, and to prevent an accumulation of material upon the scraper. When they reach the end of the last band G the chips are carried away by the band R which conducts them to the place for the further operations.

It is obvious that in place of a single milling, intermediate between two groups of bands there may be arranged several, and the groups of bands arranged correspondingly according to need, and according to the nature of the material to be treated; moreover the bands may be grouped either side by side or the one after the other, but it will be found in practice that the superposed arrangement is much the most advantageous, and generally preferable.

Having now particularly described and ascertained the nature of this said invention and in what manner the same is to be performed, as communicated to me by my foreign correspondents, I declare that what I claim is:—

1. In the manufacture of soap the improved method of drying characterised by the intermingling of the material or the renewal of the surfaces of the chips or flakes during their passage through the drying apparatus, so as to obtain a more uniform evaporation throughout, and to avoid the alteration of the material, thereby doing away with the hard and dry crusts produced by the present system.

2. Means for carrying out the hereinbefore described drying method in the

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5 manufacture of soap consisting essentially in the arrangement of the carrying bands and the interposition between two consecutive groups of said bands of an intermediate milling apparatus which transfers to the group following the material which has been delivered to it by the preceding group after it has intermingled or trituated the same in such a manner that the surfaces exposed to the drying have been changed or renewed, substantially as described.

Dated this 25th day of November 1898.

W. P. THOMPSON & Co.,
Agents.

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(1 SHEET)

[This Drawing is a reproduction of the Original on a reduced scale.]



